

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated January 29, 2004 (U.S. Patent Office Paper No. 14). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claims 1 to 24 have been canceled without prejudice or disclaimer in a previous communication with the office, while claims 25, 26, 29, 30, 31, 32, 33, 34, and 35 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. In addition, new claim 45 is hereby submitted for consideration. It is submitted that no new matter is being introduced into the application through the submission of this response.

Formal Objections or Rejections

The Specification was objected to for failing to provide proper antecedent basis for the feature 10 to 50% smaller than the width of a strait bar.

Applicants direct the Examiner's attention to page 2, lines 31 to 33 of the Certified English Translation of International Application and to the originally filed claim 26. Both disclose the feature alleged to be absent from the specification. Based on the above, withdrawal of the above objection is respectfully requested.

Claims 26, 29, and 31 were rejected under 35 U.S.C. §112, second paragraph, for being indefinite. In particular, they were rejected for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Applicants have amended claim 26 to delete the feature "preferably 30%". Therefore, Applicants submit that claim 26 and its dependent claims 29 and 31 have ceased to be indefinite. Withdrawal of the 35 U.S.C. §112, second paragraph, rejection is respectfully requested.

Prior Art Rejections

Claims 25 to 28 and 33 to 35 were rejected under 35 U.S.C. §102(e) as being anticipated by Cox, U.S. Patent No. 6,461,380 B1 (further, Cox '380).

The present invention as recited in amended claim 25 is directed to a radially expandable intraluminal vascular support that comprises a plurality of coupled flexible zigzag formed annular elements ordered vertically along a longitudinal axis. The zigzag formed annular elements define a proximal end and a distal end of the intraluminal vascular support. Each zigzag annular element is coupled to at least one other annular element through at least one bending element, which is formed from an opposing pair of equivalent opening bow shaped connector bars on the circumference of the zigzag annular elements, said bow shaped bars being arranged to form a star shaped segment.

Among the main features of the invention, the radially expandable intraluminal vascular support comprises stents with star shaped bending elements. The stent of the present application allows the opening to be widely opened at the site of the stent in a fully expanded state and allows the branch exits of the vessel system to stay completely opened. The highly flexible stent of the present invention can easily be bent in curved vessels in a collapsed state. In addition, applicants would submit that the star shaped elements of the invention allow for high flexibility, high permeability and high radial stability in expanded state.

With respect to Cox '380, the Examiner alleged in the Office Action that Fig. 3 and its respective description anticipate the recitation of claims 25 to 28, therefore anticipating the radially expandable intraluminal vascular support recited by these claims. The position of the Examiner as to Cox '380 is respectfully traversed.

Applicants will submit that Cox '380 merely discloses circumferentially expanding serpentine elements with irregular patterns defined along the distal and proximal edges of each serpentine element. Each bridging member 78 is attached to a serpentine element at juncture points 80 located along the straight linking segment 82 and on the side of the centerline 84 closest to the serpentine segment bridged by the bridging member. (See col. 5, lines 10 to 26). Therefore, the disclosure of Cox '380 does not disclose, teach or suggest at least one bending element, which is formed from an opposing pair of equivalent opening bow shaped connector bars on the circumference of the zigzag annular elements, said bow shaped bars being arranged to form a star shaped segment, as recited in at least claim 25.

In addition, Applicants will submit that the stent disclosed in Cox '380 in a collapsed state shows a surface structure with small dimensional openings. Sufficiently large openings that allow branch exits of the vessel system to be opened at all times cannot be achieved with the stent disclosed by Cox '380, not even when the stent is in a completely expanded state.

In view of the foregoing, Applicants will respectfully contend that claim 25 and dependent claims 26 to 28 are not anticipated under 35 U.S.C. §102(e) by Cox '380. Withdrawal of the 35 U.S.C. §102(e) rejection of claims 25 and 26 to 28 is respectfully requested.

Claims 29 and 30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cox, U.S. Patent No. 6,461,380 B1 (further, Cox '380) in view of Klein, U.S. Patent No. 6,602,281 B1 (further, Klein '281).

With respect to Cox '380m the Examiner alleged in the Office Action on page 4 that it discloses the invention substantially as claimed. However, the Examiner conceded that Cox '380 does not disclose connector bars having a width greater on the proximal and distal ends than in the middle of the stent. Therefore, Cox '380 by itself does not disclose, teach or suggest the radially expandable intraluminal vascular support of claims 29 and 30.

The Examiner further alleged in the Office Action on page 4 that Klein '281 cures the deficiencies of Cox '380 by teaching in Figs. 2, 12, and 13 and col. 12, lines 55 to 67 connector bars capable of having a width greater on the proximal and distal ends than in the middle of the stent for the purpose of increasing the radial stiffness at the ends of the stent to minimize flaring. The Examiner alleged that it would have been obvious to one having ordinary skill in the art to modify the stent of Cox '380 with the no flaring stent of Klein '281 to increase the radial stiffness at the ends of the stent to minimize flaring.

The position of the Examiner as to the disclosure of Klein '281 curing the deficiencies of Cox '380 is respectfully traversed. As to the disclosure of Klein '281, Applicants respectfully submit that the adjacent unit segments 22 of Klein '281's stent are joined either by beams 24 or by expansion joints 26 and not by connector bars, as alleged by the Examiner. Further, the Applicants respectfully submit that neither Cox '380 nor Klein '281 discloses or suggests bow shaped connector bars, as recited in both claims 29 and 30, or any motivation to combine these references such that their combination would disclose or suggest, much less render obvious, bow shaped connector bars, as in the present invention..

In view of the foregoing, Applicants respectfully submit that based on the deficiencies of Cox '380 identified with respect to claim 25 and on the deficiencies of Klein '281 discussed above, the combination of Cox '380 and Klein '281 still fails to disclose, teach or suggest "bow shaped connector bars", as recited in both claims 29 and 30.

Therefore, claims 29 and 30 are not rendered obvious under 35 U.S.C. §103(a) by the combination of Cox '380 and Klein '281. Withdrawal of the 35 U.S.C. §103(a) rejection of claims 29 and 30 is respectfully requested.

Claims 31, 32, 36 and 37 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cox, U.S. Patent No. 6,461,380 B1 (further, Cox '380) in view of Richter, U.S. Patent No. 5,807,404 (further, Richter '404).

With respect to Cox '380, the Examiner alleged in the Office Action on page 4 that Cox '380 discloses the invention substantially as claimed. However, the Examiner conceded on the same page 4 that Cox '380 does not disclose a width of bow bars in the middle section greater than on the proximal and distal ends and does not disclose a stent made of self-expandable nickel-titanium. In addition, as mentioned above in connection with claim 25, Cox '380 fails to disclose at least the feature of "bow shaped connector bars". Therefore, Cox '380 by itself does not disclose, teach or suggest a radially expandable intraluminal vascular support, as respectively recited in claims 31, 32, 36, and 37.

The Examiner further alleged in the Office Action, on page 4, that Richter '404 cures the deficiencies of Cox '380 by disclosing in col. 5, lines 42 - 47 and col. 8, lines 1 – 30 a self expandable stent having connecting bars with a width smaller at the proximal end and distal ends than in the middle of the stent for the purpose of correcting undesired effects at singular points and provide for a better fit to a vessel. The Examiner alleged that it would have been obvious for a person of ordinary skill in the art to modify the stent of Richter '404 to cure the deficiencies of Cox '380.

The position of the Examiner as to the disclosure of Richter '404 curing all the deficiencies of Cox '380 is respectfully traversed. As to the disclosure of Richter '404, Applicants respectfully submit that Richter '404 discloses a stent with a plurality of flexible cells that are described throughout the Richter '404 patent as having C, U, Z, and S shaped connectors. The disclosure of Richter '404 does not disclose or suggest "bow shaped connector bars", as recited in claims 31, 32, 36 and 37 and therefore does not cure at least this deficiency of Cox '380.

In view of the foregoing, Applicants respectfully submit that along with the above described deficiency in the applied primary reference, conceded by the Examiner in the Office Action, the combination of Cox '380 with Richter '404 still fails to disclose, teach or suggest "bow shaped connector bars", as recited in each of claims 31, 32, 36 and 37, and that neither reference provides any motivation for their combination such that the references together could render obvious the features of the claimed invention. Therefore, claims 31, 32, 36, and 37 are not rendered obvious under 35 U.S.C. §103(a) by the combination of Cox '380 and Richter '404. Withdrawal of the 35 U.S.C. §103(a) rejection of claims 31, 32, 36 and 44 is respectfully requested.

Claims 38 to 44 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cox, U.S. Patent No. 6,461,380 B1 (further, Cox '380) in view of Wright, U.S. Patent No. 6,273,913 B1 (further, Wright '913).

With respect to Cox '380, the Examiner alleged in the Office Action, on page 5, that Cox '380 discloses the invention substantially as claimed. However, the Examiner conceded on the same page 5 that Cox '380 does not disclose resorbable material, polyester, drugs, and radioactive materials. In addition, Applicants submit that as mentioned above in connection with claim 25, Cox '380 fails to disclose the feature "bow shaped connector bars" and "bow shaped bars being arranged to form a star shaped segment". Therefore, Cox '380 by itself does not disclose, teach or suggest the radially expandable intraluminal vascular support, as respectively recited in claims 38 to 44.

The Examiner further alleged in the Office Action, on page 5, that Wright '913 cures the deficiencies of Cox '380 by disclosing in col. 7, lines 2-8, col. 6, lines 25-31, col. 5, lines 19, and 53-57, and col. 3, lines 48-52 a stent having a plurality of coatings. The Examiner alleged that it would have been obvious for a person skilled in the art to modify the stent of Wright '913 to cure the deficiencies of Cox '380.

The position of the Examiner as to the disclosure of Wright '913 curing the deficiencies of Cox '380 is respectfully traversed. As to the disclosure of Wright '913 Applicants respectfully submit that Wright '913 discloses a stent with struts having a generally uniform thickness and no particular shape for the annular elements or for the connection bars is specified. Therefore, the disclosure of Wright '913 does not disclose or suggest bow shaped connector bars, as recited in claims 38-44. The disclosure of Wright '913

equally fails to disclose the “bow shaped bars being arranged to form a star shaped segment”, as disclosed by Cox ‘380.

In view of the foregoing, Applicants respectfully submit that along with the above described deficiency in the applied primary reference conceded by the Examiner in the Office Action, the combination of Cox ‘380 with Wright ‘913 still fails to disclose, teach or suggest “bow shaped connector bars” or “bow shaped bars being arranged to form a star shaped segment”, as recited in claims 25, and 38-44. Further, neither reference provides any motivation such that their combination could render obvious the claimed features of the present invention. Therefore, claims 38-44 are not rendered obvious under 35 U.S.C. §103(a) by the combination of Cox ‘380 and Wright ‘913. Withdrawal of the 35 U.S.C. §103(a) rejection of claims 38-44 is respectfully requested.

Conclusion

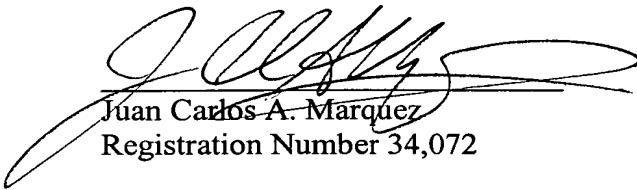
In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to

contact the Applicant's undersigned representative at the address and phone number indicated below.

Respectfully submitted,

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